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Artistic Printing: Final Report

Vermiculite Intermountain located on the west side of downtown Salt Lake City is one of many facilities which received vermiculite ore from the Libby Mine in Montana. The Vermiculite Intermountain facility received ore from Libby, Montana by rail, for further processing, from 1940 until the early 1980's. The processing operations were moved to another site several blocks away in the 1980's. The ore was processed into exfoliated vermiculite for retail and wholesale distribution of Zonolite insulation, concrete aggregate, fireproofing and other products. Exfoliated vermiculite is created when the vermiculite is dry heated in a furnace until the water within the layers of vermiculite evaporates causing the vermiculite to expand creating a lighter, "popcorn-like" material. This exfoliated vermiculite can then be used for a variety of purposes such as home and building insulation, as well as horticultural purposes.

The boundaries of the Vermiculite Intermountain location have changed over time and currently consist of the Utah Power and Light 300 West substation, a commercial parking lot and small businesses. The area surrounding these boundaries has undergone extensive redevelopment. The area north of the location is currently the Delta Center, and the area west of the location is the Gateway shopping center. A former Vermiculite Intermountain employee has stated that the majority of the processing building was located on the site now owned by Utah Power and Light. Gravel and fill have been placed in and around the substation and the facility is secured at all times.

During walkthrough inspections, vermiculite and stoner rock similar to that found at other processing facilities could be seen on the ground surface in several locations. Analysis of ground surface material has found that percent levels of Libby amphibole (LA) remain in the subsurface of the Utah Power and Light substation. LA is a classification for the Libby Asbestos Project which includes a series of amphiboles, one of which is tremolite asbestos. Further testing was performed at adjacent facilities to determine the extent of contamination. Testing was performed at surrounding properties of the substation (Artistic printing, Frank Edwards Building, LaQuinta parking lot, and Utah Paper Box). Sampling consisted of dust, ambient air, personal air, composite soil, and grab. Analysis of the samples showed a need for remediation efforts of the Artistic Printing building, UPL switch house (brick building) and soils at and surrounding the properties.

Environmental Restoration, LLC was tasked with the clean-up of the Artistic Printing building. Due to schedule constraints, printing operations in the Artistic Printing building could only shut down for a ten day period from the evening of May 21st to May 31st. A work plan was developed to allow peripheral areas of the building to be divided

into sections and cleaned while the printing presses were allowed to remain in operation. This work plan called for the building to be divided into eight sections. Six sections were to be isolated, put under negative pressure, cleaned and cleared separately from the main work areas. The main work areas (press room and binding room) were to be cleaned during the shut down period. Each peripheral area was isolated using wooden framing and two layers of 6 mil. poly. Clean-up operations were conducted between the hours of 6:00 PM to 6:00 AM to minimize conflicts with the printing operations. Asbestos containing waste generated during clean-up operations was sent to Clean Harbors Grassy Mountain facility or East Carbon Development Corp. for final disposal. Approximately, 100 cubic yards of contaminated material were sent to Clean Harbors for disposal. An additional 20 cubic yards were sent to ECDC for disposal.

Clearance sampling and personal safety monitoring was to be conducted by CDM. Five clearance samples were taken for each area using personal air pumps. Samples were analyzed using Transmission Electron Microscopy. Acceptable clearance levels were set at zero Libby amphibole fibers detected on all five samples. CDM also conducted visual inspections of all stock and equipment removed from the building, and micro-vacuum samples of equipment to remain in place.

Set-up and equipment mobilization began on April 14, 2004. Official remediation efforts began on April 16th. Clean-up operations for the Artistic Printing consumed approximately 11,000 man hours. Each of the perimeter areas were isolated, cleaned and cleared separately. Stock and equipment was moved from the building to 48'x102' trailers. A total of 23 trailers were rented to store stock during cleaning operations. Each area was vacuumed with all materials and equipment in place to keep airborne fibers at a minimum. Stock items and equipment were then wiped using wet techniques whenever possible, then shrink wrapped prior to removal from the building. These items were then moved to the storage trailers. Item which could not be removed were cleaned, inspected, and wrapped in two layers of poly to remain in place. The building surfaces were then wiped down and encapsulated prior to clearance monitoring. Each of the six perimeter areas were sampled separately. All areas passed with no Libby amphibole fibers detected. These areas were then left sealed until the final clearance monitoring was conducted.

The final stage of operations began on May 20th, 2004. This included the cleaning of the main operational portions (printing and binding rooms) of the Artistic Printing building. Environmental Restoration, LLC began the final stage of clean-up operations on the close of the business day. The printing area and binding area were isolated from each other using 2 layers of 6 mil poly. Each area was put under negative pressure and plumbed for make-up air separately and load outs were constructed for each area. Work crews were split into two 12 hour shifts and worked continuously on clean-up operations. Heavy machinery was vacuumed and detail cleaned using wet techniques. In addition all air filters were removed from equipment. The machines were then inspected and micro-vacuum sampled. Each machine was cleared with zero fibers detected. The machines were then sealed in two layers of 6 mil. poly while the cleaning structural cleaning commenced. All surfaces were vacuumed and cleaned with lead tack wipes. Following the cleaning operations surfaces were then encapsulated prior to sampling. Clean-up operations finished on May 29th. Clearance samples were taken approximately 11:00 AM on May 29th. The binding room samples showed zero Libby amphibole fibers detected. The Press room sample showed one fiber detected on one clearance monitor. On May 30th the press room was re-encapsulated at 5:00 AM and

sampled at approximately 11:00 AM. The samples came back for zero Libby amphibole fibers detected.

Restoration operations began on May 31st. All interior framing and poly barriers were removed. Materials which had been moved to storage were then moved to the Artistic Printing building. The materials were moved to the Artistic Printing loading dock, where custody of the material was turned over to Artistic Printing. Artistic printing was tasked with the replacement of all filters removed from machines and equipment. Environmental Restoration, LLC reimbursed Artistic Printing for these costs. All stock and equipment was returned and all restoration was completed on June 4, 2004.